REMARKS

Applicants thank the Examiner for the very thorough consideration given the present application. Claims 1-29 remain in the application. Claims 1 and 25 are independent.

The Office Action dated October 10, 2008 has been received and carefully reviewed. Each issue raised in the Office Action is addressed below. Reconsideration and allowance are respectfully requested in view of the following remarks.

Priority Under 35 U.S.C. § 119

Applicants thank the Examiner for acknowledging Applicants' claim for foreign priority under 35 U.S.C. § 119, and receipt of the certified priority document.

Claim Rejections – 35 U.S.C. § 103

Claims 1-17, 25 and 26 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Pat. No. 5,539,500 to Hamamichi et al. ("Hamamichi") in view of U.S. Pat. No. 4,141,646 to Soma et al. ("Soma"). Applicants submit the Examiner has failed to establish a *prima facie* case of obviousness and respectfully traverse the rejection. A complete discussion of the Examiner's rejection is set forth in the Office Action, and is not being repeated here.

In order to establish a *prima facie* case of obviousness under 35 U.S.C. § 103(a), the cited references must teach or suggest each and every element in the claims. *See M.P.E.P. § 706.02(j); M.P.E.P. 2141-2144.*

Applicants respectfully submit that this combination of elements as set forth in independent claims 1 and 25 is not disclosed or made obvious by the prior art of record, including Hamamichi and Soma. Applicants will respond based upon a detailed analysis of claim 25, as the Examiner has done, noting that claim 1 parallels the structure of claim 25, and adds determination, detection and correction steps.

One of the important features of the invention, as is described in general terms in the paragraph bridging pages 12 and 13 of the specification, is that because the toner density reference value is corrected based upon a correction value of the currently set value with respect to the initial value of the set value of the image forming condition, instead of a correction value of the currently

set value with respect to the previous set value of the image forming condition, the developability changes gradually based on a humidity change. Therefore, even when the correction value of the currently set value with respect to the previous set value of the image forming condition is small, it is possible to correct the toner density, hold the appropriate toner density in the developing device, stabilize the developability and form stable, high-quality images.

The Examiner appears to assert that one of ordinary skill in the art would have applied the technology of "toner supply" in Soma to the device of Hamamichi. Applicants assert this combination is inappropriate and unreasonable for the following reasons.

The Examiner states that Hamamichi discloses an image forming apparatus comprising a developing unit 45a-45d; a toner density detecting unit AIDC sensor 800 in Figure 9 and 10 or ATDC sensors 601a-601d in Figure 15 for detecting a toner density in the developing unit; a humidity detecting unit 300 in Figure 4 for detecting humidity information around the developing unit; an image density correction control unit CPU 900 in Figure 10 in coordination with AIDC sensor 800 for forming a reference visible image based on a set value of a predetermined image forming condition, detecting a density of the formed reference visible image, and correcting the set value; a judging unit CPU 900 for determining whether or not a set value of an image forming condition has been corrected beyond a predetermined range with respect to an initial value; a detecting unit CPU 900 in conjunction with humidity controller 400 and humidity sensor 300 for detecting a humidity change by monitoring an output of the humidity detecting unit, when said unit determines that a correction value with respect to the initial value exceeds the predetermined range; a determining unit CPU 900 functioning as described in column 8, lines 8-18, for determining a correction value of the toner density reference value, based on the humidity change detected by the detecting unit; and a correcting unit AIDC sensor 800 as described in column 7, lines 44-45, for correcting the toner density reference value using the correction value determined by the determining unit.

The Examiner depends upon "an AIDC sensor" and "an ATDC sensor" of Hamamichi as "the toner density detecting unit" in the instant claims. This "AIDC sensor" is for detecting image density, and therefore is totally different from the "toner density detecting unit" of the present invention. Moreover, the "ATDC sensor" is for detecting volume density, and therefore

is also different from the "the toner density detecting unit" of the present invention. More specifically, Applicants respectfully submit that AIDC sensor does not detect a toner density in the developing unit as it instead merely detects the density ID of the developed image formed on the surface of the photosensitive drum, as described in column 7, lines 27-34, and ATDC sensors 601a-601d are of the magnetic type for detecting the "volume density of the two-component developing materials," column 9, lines 12-16, and work by "detecting the permeability of the developing material," column 9, lines 23-25. Detecting the volume density is not the same as detecting the toner density as claimed. In addition, Hamamichi does not disclose storing a toner density reference value in a memory unit, as CPU 900 is merely looking to see if the image density is outside of a permissible range. There is no determining unit for determining a correction value of the toner density reference value, based on the humidity change detected by the detecting unit; and there is no correcting unit for correcting the toner density reference value using the correction value determined by the determining unit. Hamamichi merely turns on the humidifier or dehumidifier if the image density falls outside of a permissible range. There is no correction to a toner density reference value.

Furthermore, Hamamichi fails to disclose "determining whether or not a set value of an image forming condition has been corrected beyond a predetermined range with respect to an initial value." The portion referred to by the Examiner at column 8, lines 8-18, only describes that an output value of image density of a developed test pattern is compared with a predetermined value. Moreover, there is no concept in Hamamichi of "an initial value" which is an important aspect of the present invention.

Hamamichi fails to disclose "detecting humidity by the humidity detecting unit when a determination is made that a correction value with respect to the initial value exceeds the predetermined range" as in claim 1 and "detecting a humidity change by monitoring an output of the humidity detecting unit" in claim 25. Hamamichi only describes periodically measuring humidity in an area around a developing unit and adjusting the humidity based on the measured result.

Hamamichi fails to disclose "determining a correction value of the toner density reference value, based on the detected humidity" in claim 1 and "determining a correction value

of the toner density reference value, based on the detected humidity change." The portion referenced by the Examiner at column 8, lines 8-18, only describes that an output value of image density of a developed test pattern is compared with a predetermined value.

According to the Office Action, Soma is relied upon for detecting concentration of a developing liquid in a liquid development image formation apparatus, and sensing concentration of developing liquid at column 3, lines 1-10 and column 4, lines 38-41, and using a toner supply unit for supplying toner at column 4, line 44, through column 5, line 2.

To the contrary, Soma does not remedy the defects of Hamamichi discussed above. Soma discloses detecting density of developing liquid in a developing device and supplying toner based on the detected value. However, there is no disclosure concerning humidity in an area around the developing device. Accordingly, there is no motivation for combining Hamamichi with Soma. Also, even with this combination, a person having ordinary skill in the art would have had no motivation for "detecting humidity in an area around the developing unit when a set value of an image forming condition has been corrected beyond a predetermined range with respect to an initial value, and determining a correction value of a toner density reference value, based on the detected result" as in the present invention.

In this invention, since the toner density reference value is corrected based on a correction value of the currently set value with respect to the initial value of the set value of the image forming condition instead of a correction value of the currently set value with respect to the previously set value of the image forming condition, the developability changes gradually based on a humidity change. Therefore, even when the correction value of the currently set value with respect to the previous set value of the image forming condition is small, it is possible to correct the toner density, constantly and with certainty hold the appropriate toner density in the developing device, stabilize the developability and form stable high-quality images, as explained in the specification.

Applicants respectfully submit that the combination of elements as set forth in independent claims 1 and 25 is not disclosed or made obvious by the prior art of record, including Hamamichi and Soma, for the reasons explained above. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested. With regard to dependent claims 2-17 and 26, Applicants submit that claims 2-17 and 26 depend, either directly or indirectly, from

independent claims 1 or 25 which are allowable for the reasons set forth above, and therefore claims 2-17 and 26 are allowable based on their dependence from claims 1 and 25. Reconsideration and allowance thereof are respectfully requested.

Claims 18-22 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hamamichi in view of Soma, and further in view of U.S. Pat. No. 5,216,470 to Asanuma et al. ("Asanuma"). This rejection is respectfully traversed.

According to the Office Action, Asanuma is used as a teaching for measuring a continuous supply time in which the toner is continuously supplied at column 4, lines 1-20, and determining whether or not the measured continuous supply time exceeds a predetermined supply time at column 4, lines 1-20. To the contrary, Asanuma is not measuring a continuous supply time, as it is instead performing repeated sampling of toner density for a period long enough to ensure that the average "can be accurately determined" at column 4, line 17. Asanuma makes clear in column 6, at lines 9-32, that toner may be supplied, but only until the desired concentration is sensed at Q1 and Q2 and the circuit does not measure a continuous supply time and does not restrict image formation if the continuous supply time exceeds the predetermined time. Moreover, Asanuma fails to remedy the defects of Hamamichi and Soma discussed above as it fails to show or suggest the several claim limitations discussed in detail above, the details of which are incorporated herein. Reconsideration and allowance thereof are respectfully requested.

Claims 23 and 24 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hamamichi in view of Soma, and further in view of Applicant's Admitted Prior Art ("AAPA"). This rejection is respectfully traversed.

The AAPA is relied upon for toner particle average diameters and concentrations. However, AAPA fails to remedy the defects of Hamamichi and Soma discussed above, as it fails to show or suggest the several claim limitations discussed in detail above, the arguments of which are incorporated herein. Reconsideration and allowance thereof are respectfully requested.

Claim 27 stands rejected under 35 U.S.C. § 103(a) as unpatentable over Hamamichi in view of Soma, and further in view of U.S. Pat. No. 5,126,789 to Fukuchi et al. ("Fukuchi"). This rejection is respectfully traversed.

According to the Office Action, Fukuchi is cited for its showing of a detachable toner container 15 in Figure 1 and 31, behind access cover 13. However, Fukuchi fails to remedy the defects of Hamamichi and Soma discussed above, as it fails to show or suggest the several claim limitations discussed in detail above, the arguments of which are incorporated herein. Reconsideration and allowance thereof are respectfully requested.

Claims 28 and 29 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Hamamichi in view of Soma, and further in view of Fukuchi and Asanuma. This rejection is respectfully traversed.

The teachings of Fukuchi and Asanuma have been discussed above with respect to the rejections of claims 18-22 and 27, and are incorporated herein. Fukuchi and Asanuma taken collectively fail to remedy the defects of Hamamichi and Soma discussed above, as it fails to show or suggest the claim limitations discussed in detail above, the arguments of which are incorporated herein. Reconsideration and allowance thereof are respectfully requested.

Conclusion

All objections and rejections raised in the Office Action having been properly traversed and addressed, it is respectfully submitted that the present application is in condition for allowance. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Notice of same is earnestly solicited.

Prompt and favorable consideration of this Amendment is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Paul T. Sewell, Registration No. 61,784, at (703) 205-8000, in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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